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IN THE MATTER OF THE APPLICATION OF TUCSON ELECTRIC POWER COMPANY FOR APPROVAL OF ITS RENEWABLE ENERGY STANDARD AND TARIFF IMPLEMENTATION PLAN	DOCKET NO. E-01933A-09-0340 INFINIA CORPORATION REQUEST FOR PARTICIPATION OF INFINIA SOLAR TECHNOLOGY IN THE DG AND OTHER "PV" RENEWABLE ENERGY PROGRAMS

With this filing Infinia Corporation, a US-based solar energy technology manufacturer and provider of the Infinia Solar System (ISS), a power generating product that converts concentrated solar energy into electricity, requests Commission approval for the ISS inclusion in the Tucson Electric (TE) Renewable Energy Credit Purchase Program (RECPP) and eligibility for the incentives of that program. The RECPP is a solar electric program for distributed generation (customer-sited electric generation) and is currently described by TE as a "Solar PV" program. Infinia also requests to be included as an eligible technology for all other TE solar electric distributed generation (DG) initiatives in addition to the ISS role in utility-scale projects.

TE inappropriately restricts the eligible solar electric technology for the DG Program to PV.

In the Commission decision creating the Renewable Energy Standard (RES) plan, Decision #69127, the Commission defined "Distributed Renewable Energy Resources" as

> *applications of the following defined technologies that are located at a customer's premises and that displace Conventional Energy Resources that would otherwise be used to provide electricity to Arizona customers:*
>
> *1. "Biogas Electricity Generator," "Biomass Electricity Generator," "Geothermal Generator," "Fuel Cells that Use Only Renewable Fuels," "New Hydropower Generator of 10 MW or Less," or "Solar Electricity Resources," as each of those terms is defined in subsections (A)(l), (A)(2), (A)(5), (A)(6), (A)(9), and (A)(10).* (Commission Decision #69127, Appendix A, p 4, emphasis added)

Further, "Solar Electricity Resources" are listed as an "Eligible Renewable Energy Resource" and are defined as technology that:

> *use sunlight to produce electricity by either photovoltaic devices or solar thermal electric resources.* (IBID, p 5-7)

In its implementation of the Commission Decision, TE has inappropriately limited the scope of eligible DG solar technologies to "PV" as expressed in the TE's updated distributed generation RECPP filed in this Docket as Exhibit 5. Although the opening discussion in the filed 2010 TEP REST Implementation Plan talks at several places about customer-sited distributed generation, Exhibit 5 clearly details the RESTRICTION on the solar electric technologies allowed: "Solar PV". EXHIBIT 5 describes in detail that ONLY "Solar PV" is eligible for receiving the RECPP incentives. Even though Appendix A at page 1-8 opens with "All solar electric generating Customer Systems", the whole Exhibit 5 describes an EXCLUSIVELY PHOTOVOLTAIC (PV) program.

To be compliant with the Commission definition of solar electricity resources eligible for distributed generation application, the TE "Solar PV" program should be expanded to include solar thermal electric technology that can also serve the customer-sited, distributed generation application. Because solar thermal electric generators like solar trough and solar tower are usually only economically viable in large 100s of MW installations, TE has begun using "PV" to mean the smaller, distributed solar electric generation projects. While this may have represented the conditions of the past, it is no longer the case. Specifying "PV" precludes the ISS and possibly other DG-compatible solar electric technologies from participating in this program and is inconsistent with the Commission definitions.

Since 1985, Infinia has delivered super-high reliability, high efficiency, zero-maintenance, free-piston Stirling engines and power systems to commercial enterprises and government agencies for a broad range of applications. The ISS couples our patented, low-cost and maintenance-free engine with a dish-style solar concentrator to produce 3KW of grid-quality AC power. The ISS is a solar thermal electric generating technology that requires no water for operation, is well-suited for Arizona's DE applications, and is commercially available. The ISS should appropriately be included in the DG technologies eligible for TE incentives. The modular nature of the ISS enables projects from kW-scale to 100s of MW-scale.

The ISS should be included in all TE programs and proposed programs where PV is eligible. The high efficiency, modular characteristics of the ISS enables performance in many of the same applications where PV can be deployed, especially for multi-kW ground-mount applications. With multiple customers and project developers considering the use of the ISS technology in TE DG programs, Infinia has had the opportunity to discuss the attributes of the technology and its DG and utility-scale application with TE. While there has been interest in the product's benefits: high efficiency, modular implementation, scalability, no water requirement

for operating the units, to date there is NO written acknowledgement that the ISS would be accepted as an eligible technology for the RECPP incentive. This position should be modified.

The Commission should direct TE to make its solar program language consistent with Decision # 69127 language and expand its program and equipment standards to include the ISS.
The use of a specific technology, photovoltaic (PV), has been used loosely to mean DG/DE solar technology and solar thermal electric (STE) technology to mean utility-scale solar. The Commission should direct TE to make its language for the DG and the wholesale DG / utility-scale wholesale programs consistent with the definition language in the Commission Decision # 69127 and be open to any solar electricity resources that otherwise meet the program requirements. Given the details in the Exhibit 5 Solar program, Infinia would work with TE to establish appropriate equipment standards for the ISS that are equivalent to those described for PV.

Solar electricity technologies will continue to change and evolve. The broader DG, wholesale DG, and renewable resources definitions in the Commission's Decision #69127 allows evolving and new solar electric technologies to find their own economic niches rather than presupposing the technology type, PV or STE, that may emerge as the dominant type for a specific application. For current and future programs, TE should describe the characteristics desired or required and leave open the solar electricity technology that will meet the requirements. Customers and developers will select the technologies that meet their needs and the program requirements in these markets.

Infinia acknowledges the very good work that this Commission and TE have done in implementing the Arizona RES program. But, language in TE and other state utility solar programs should not pre-suppose a solar technology, but rather follow the more open definitions in the ACC's Commission Decision #16127. Infinia desires to actively participate in the TE (and other Arizona utility's) renewable incentive programs in ways that enhance and promote a successful solar renewable energy program in Arizona.

Respectively Submitted on January 5, 2010,
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